Homework 12 – Simultaneous Equations

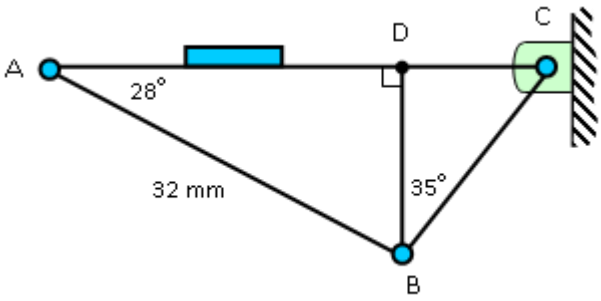
1. Solve the following systems of equations by "substitution".
   a. $a = 3b + 6$ and $3a + b = 8$
   b. $x = 17 - 3y$ and $3x - 2y = -4$
   c. $f = 1 - 2e$ and $5e - 2f = -4$

2. Solve the following systems of equations by "elimination".
   a. $2x + 4y = 24$ and $7x - 2y = 4$
   b. $-2r + 3t = 6$ and $9r - 7t = -1$
   c. $10a - 3b = 46$ and $6a - 8b = 40$

3. The North of Scotland supports 120000 red squirrels. This is 75% of the UK population. How many red squirrels live in the UK?

4. Amanda wins some money and decides to spend £200 on some jewellery. If it appreciates at the rate of 2% per year, how much will the jewellery be worth 3 years from now?

5. The diagram opposite shows part of the framework for a small hinged bracket.
   Calculate the length of DB.
   Hence calculate the length of BC.



6. Expand these brackets:
   a. $(m - 5)(3m + 4)$
   b. $(y - 4)(y^2 - 7y + 9)$

7. Solve following equations:
   a. $7k + 2 = 4k - 25$
   b. $3(4 - x) + 5 = 19 - x$
   c. $(x - 7)(x - 3) = (x + 2)^2 + 3$

8. The room shown opposite has two parallel sides. Using the given dimensions calculate the perimeter of the room.